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HOW TO MAKE THE BRITISH RAILWAYS PAY

AN ECONOMIC SURVEY

BY

M. F. FARRAR

WITH A

FOREWORD

BY

PROFESSOR J. H. JONES, M.A.

PROFESSOR OF ECONOMICS AND HEAD OF THE COMMERCE
DEPARTMENT, UNIVERSITY OF LEEDS

*Money is not wealth under our modern system of
Finance. It is merely the means of exchanging
goods or services for other goods or services, and
this exchange is greatly accelerated by Transport
Development*



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FOREWORD

BY

PROFESSOR J. H. JONES, M.A.

THE author of this book is an electrical engineer who, in true Yorkshire fashion, started on his own account and built a business sufficient for his purpose. He once told me that he owed his success to the inspiration and guidance of books on economics. It was a confession that I had not previously heard from a business man, and it would therefore have been ungrateful on the part of a 'professional' student of the science to decline the invitation to write an introduction to this volume. But there is another reason why I find pleasure in the task. It seems to me that of all technical experts the electrical and power engineer is the one who works in closest sympathy with the economist, and with the greatest understanding of his problems and difficulties. They frequently handle the same tables and charts, and both do so for the purpose of investigating problems of cost and price fixation. During repeated discussions of electrical and allied problems Mr. Farrar has made me realize, more fully than I had ever done before, the importance of the 'load' as an economic factor.

I cannot say whether his criticisms of railway policy are sound and his constructive suggestions worthy of adoption. The value of these can only be estimated by experts. As a frequent passenger on main line trains, I cannot help feeling, however, that Acworth was not wholly right in stating that railways charge what the

traffic will bear, and that the present policy of the railway companies falls short of perfection. If I travel from York or Leeds to London on Friday and return on Saturday, I am allowed a week-end ticket, at reduced fares, but if I return on Friday evening I must pay the full fare for each of the two journeys. A few days ago I made the double journey in one day, the forward journey in a train that was half empty, and the return journey in a coach which contained two other passengers. When a Leeds football team plays at Sheffield the railway companies provide special trains at reduced fares. When the weather turns cold and the demand for coal increases our coal merchants raise their prices. It may be that the greater demand for railway traffic caused by a football match is itself highly elastic, and that, therefore, the railway companies are wise in ignoring the example of the coal merchants. I feel a little more doubtful about the holiday demand. It is generally assumed that the action of holiday-seekers is largely influenced by the practice of issuing tourist and other special excursion tickets at reduced fares. It may be that if no such facilities were granted fewer taxi-cabs would be employed at railway termini, a bolder front would be shown to landladies who charge exorbitant prices for room or board, or places of amusement would suffer. But it is an open question whether an appreciable proportion of holiday-seekers would abandon the joys of anticipation preceding a holiday on account of the additional cost involved in the payment of ordinary fares.

The railway companies are not actuated by a spirit of philanthropy or by a paternal desire to see children enjoying themselves on the sands at Playtown-

on-Sea; they are actuated merely by financial considerations. It is on account of the same desire for gain that a traveller from, say, Leeds to York may obtain a return ticket (available only on the day of issue) for the price of a single ticket. Here the policy is influenced by the competition of buses. But in the case of long journeys from London to the North bus competition is wholly ineffective—there are many who have travelled once by bus, but there may not be many who repeat the experiment during the winter months—and it is thought that the demand for passenger transport is inelastic. For this reason there are no concessions to those who travel near the middle of the week. Is it not possible, however, that we find here an explanation of the fact that during the dead season, such as the last week in January, those who travel frequently do so in lonely state? If those who might travel more frequently for business reasons are not worth catering for, there may still be many who would care to travel on Wednesday to a *matinée*—for the convenience of whom the express trains might have actually been designed, so perfectly are they timed. It may be impossible to discover what proportion of those who travel in first-class compartments do so at the expense of others, either the government or other organizations which they represent, but the elasticity of the demand for traffic as a whole during the dead season could be ascertained by experiment.

Although, as a layman, I cannot be expected to estimate the elasticity of demand for traffic under different circumstances, and to indicate the value of the discussion on railway policy contained in the following pages, I can at least state that to the author railway policy has been a hobby for many years. It has

received long and close attention from the point of view which is characteristic of the electrical engineer, and by one in whose judgment on other matters, with which I am more familiar, I have confidence.

J. H. JONES.

THE UNIVERSITY, LEEDS.

2nd February, 1931.

PREFACE

THE problem "how to make the railways pay" involves many considerations. Individual freedom, initiative, and enterprise have characterized the life of the British people from time immemorial, and it should not lie beyond our capacity to make the railways an efficient paying concern. It is, in fact, imperative that this should be done, for railway transport is the basis of all transport, and the life blood of the nation. It is essential to industry in all its forms: it is the basic industry of basic industries.

Transport enters into the cost of production at every point, and on the efficiency of our transport system depends the competitive power of our industry in the markets of the world. The country which first rationalizes and co-ordinates its various systems of transport will gain a tremendous industrial lead over the rest of the world. The economic development of any country is in direct proportion to the efficiency of its transport system.

The present work is an attempt to indicate a way back to the former prosperous condition of the railways, largely by co-operation with the newer forms of transport, and by the alteration of the system upon which the railway rates of charges are based. In my opinion the present charging system of our railways is out of date, and I introduce to the notice of the readers of this book—a large proportion of whom will be, I expect, railway shareholders, railwaymen, and traders—a scheme for a new system, with a special request that they will give careful consideration to my proposals in

conjunction with the Railways Act of 1921, because under this Act the interests of the whole community are bound together, so that whatever affects one section will eventually affect all the others.

If we allow our railways to be nationalized, we shall do ourselves a very bad turn. If, on the other hand, the railways are improved and expanded, as they can be, without recourse to nationalization, they may yet win for our national competitive power a great material advance over that of the rest of the world.

M.M.F.

10 CROSSLEY STREET,
HALIFAX.

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HOW TO MAKE THE BRITISH RAILWAYS PAY

CHAPTER I

INTRODUCTORY

CRITICISM is easy, but useful criticism is difficult. It is doubtful whether even useless criticism is often harmful, but it is clear that if it is to produce valuable results criticism should be constructive, and that if it is to be constructive it should be based upon the most careful inquiry into the facts of the case.

My apology for writing this book is the fact that I feel strongly that the policy of the railway companies of this country is open to serious criticism, and that it is the duty of shareholders to endeavour to understand the true economic position of the industry in which they are interested in order that they may be able to appreciate the true value of their holdings. There is no doubt that holders of ordinary stocks in British railways have been badly treated in the recent past. They have suffered from the operation of the Railways Act of 1921, as well as on account of the serious fall in the value of money since the outbreak of the War. Moreover, road competition, much of which is uneconomic, has adversely affected the position of railway shareholders. An even more important factor has been the depression in trade during the last ten years. It is beyond my purpose to examine all the causes of the depression, but in so far as it has reacted upon railway traffic it may

be worth while drawing attention to two outstanding factors. The first is the fall in the price level since 1920, and the consequent check upon the expansion of industry. A fall in prices creates a feeling of uncertainty, and while under the influence of that feeling few business people have the courage to extend their undertakings. The second factor is the application on the part of Germany to pay reparations in kind to such countries as Italy and France. These countries, to which we formerly sold coal in large quantities, have been, and still are, receiving coal from Germany under the Reparations Agreement, and in some cases have even sold some of the coal thus acquired to other countries which are also our customers. All this has meant a reduction in coal mining industry, and a check on development in the basic industries.

The effect of these influences upon the railway industry has been intensified by the development of the petrol engine, and the growth of road traffic. The net result is to be found in the low load factor of railway transport.

Low Load Factor of the Railways.

It is obvious that our railways are able to convey more passengers and to carry more goods than they are called upon to do at the present time. The central problem with which the railway authorities are faced is that of devising some means of increasing the load factor in respect both of passengers and of goods, thereby making the maximum use of the track and rolling stock. During the month of August the passenger rolling stock and the track are used more fully than at any other time; if the load factor could be maintained throughout the year at approximately the same level,

it is clear that the cost per unit of traffic would be considerably reduced. Apart, however, from holiday periods, such as the Easter week-end and Whitsuntide, the passenger factor is extremely low.

Example of Load Factor.

I have stated, in effect, that no business can be economically run unless it has a high load factor. In order to make clear what I mean by a high load factor, I may submit the following example. Let us take as our unit a mile of track, one engine, and one coach, and assume that the total cost of all three items is £10,000, and that the interest on this capital is £500 per annum. It follows that if one passenger used this train for one journey per day, the standing charges would amount to approximately 27s. 6d. per journey, but that if 500 passengers used the train once a day the standing charges per passenger would be .66d. per journey. If the train were increased in length and 500 passengers carried each journey the standing charges would probably not exceed .007d. per journey. The standing charges on a railway system, that is to say, the charges that remain constant irrespective of the number of passengers or quantity of goods carried, are extremely heavy, and it is therefore obvious that in order to secure economy in working, and to enable the company to charge low rates, the load factor must be raised. But the load factor, in turn, can only be raised if the system of charges is such as will induce people to travel.

New System of Charges.

In a later chapter I shall submit a new system of rates and fares, which are closely related to the standing charges of the railways, and are so based as to tend to increase the traffic both in passengers and in goods. I

shall also endeavour to show that as far as that part of the new system is concerned which relates to passengers, it may be introduced as an experimental addition to the system already in force. I am convinced that it would be possible, in the manner that I shall indicate, to increase the revenue of the industry which is derived from passenger traffic. Railways, like other enterprises, have something to offer for sale, and their success, like that of other enterprises, will depend upon the way in which they market their product. In any marketing scheme a condition of success is to offer a product for sale on terms which are acceptable to the potential buyers.

General Strike and Its Effect on the Railways.

Before proceeding to consider the problem in detail it may be desirable to illustrate, from the recent history of one railway company, the manner in which the problem with which we are now concerned has been made more acute during the last three years, and, for the purpose of this illustration, we may consider the case of the London & North Eastern Railway Company. In 1926 there was a General Strike in the country, and a prolonged stoppage in the coal mining industry. The first effect of this disturbance was to reduce the net revenue from £8,616,537 for the year ended December, 1925, to £3,255,811 for the following year. Even in 1925 the revenue was considerably below that of the previous year. The net result in the fall of revenue was to necessitate a raid upon reserves to the extent of £7,252,548 in order to enable a payment of full dividend upon the trustee stocks, and the payment of a nominal dividend of one-eighth per cent on the preferred ordinary stock. The payment of the latter was necessary in order to maintain the prior stocks in the list of

trustee stocks; if this course had not been adopted, railway finance would have suffered severely for at least a decade. If the coal stoppage of 1926 had not occurred it would have been possible to employ the reserves in the payment of, say, 4 per cent on the preferred ordinary stocks until 1931, by which time the railway system of the company might be expected to be sufficiently successful to enable payment of dividend to be made out of current income.

Effect on Road Transport.

The fall in the reserves of the railway company was not, however, the only effect of the strike. The latter gave the road transport system a unique opportunity of revealing its possibilities. The manner in which road vehicles coped with the situation made it clear that an interruption of railway traffic would not create the chaos which it had done in earlier days. Moreover, railways lost traffic, both in goods and in passengers, which will never be recovered. The General Strike succeeded in pushing forward the road transport industry in twelve months to a position which under ordinary conditions it would have taken ten years to reach.

When normal conditions were restored there was a smaller volume of work available for the railways—in particular the traffic in coal was seriously reduced. During the coal stoppage our foreign customers had been compelled to obtain supplies from other countries, and the latter took advantage of the situation to secure long contracts. Not until last year (1929) did we succeed in recovering a substantial proportion of those contracts which were lost in 1926; at the same time we may now reasonably expect an upward trend in coal exports and a consequent improvement in that particular

part of railway traffic—coal—which depends upon the export trade.

Advantages of Road Transport.

During the last three years in which the railway industry was suffering from a fall in the coal traffic the competition of the road transport industry for the remaining traffic was steadily increasing. The growth of road competition in turn led to a reduction of passenger and goods rates and a consequent fall in the revenue of the company. In certain forms of traffic, road transport was clearly superior to railway transport. Transport by road revealed the advantage of door to door collection, and for delivery over short distances less handling and packing were required by road than by rail. In many cases, too, those high-class goods which had formerly constituted the main remunerative traffic of railway companies could be carried by road at lower cost and with greater efficiency. In railway transport, traffic in high-class goods indirectly subsidizes the traffic in the low-class goods of our basic industries, and when the former is lost the position of the latter becomes more difficult. Further, when a railway company loses part of its traffic the cost of the operation is not proportionately reduced. In the language of economics the railway transport industry is working under the operation of the law of increasing returns. It will therefore be evident that if railway charges are to be reduced, the load factor must be increased, and, conversely, that if the load factor is increased it becomes possible to reduce the charges made for the carriage of people and of goods. The Railways Act of 1921 makes provision that if, in fact, the cost of traffic is reduced the rates actually charged will be adjusted to the new situation.

CHAPTER II

THE RAILWAYS ACT, 1921

WITH the passing of the Railways Act, 1921, the railways were put on an entirely new basis.

In August, 1914—under statutory powers dating from 1871—the railways were temporarily nationalized, and became part of the war machine to be used in the service of the nation. In August, 1921, they were handed back to the railway companies, after seven years' war service. In taking over the control of the railways in 1914 the Government had guaranteed to maintain their net receipts on the 1913 basis. It had also promised to return the properties to their owners, after the conclusion of the War, with equity unimpaired.

The net receipts were satisfactorily maintained, but some difficulty arose about unimpaired equity. The Government, however, offered £60,000,000, which was eventually accepted as a "Full discharge and satisfaction of all claims arising out of, or in respect of, the possession of the Crown of the railways."¹ This compensation of £60,000,000, if it did not actually secure the support of the railway companies for the Government's policy, at least influenced them in their acceptance of that policy.

There were three views as to what might happen at the end of the control period—

1. The railways might be put back on their pre-war basis.
2. They might be nationalized.
3. Private ownership of railways might be retained,

¹ Railways Act, 1921 (2.)

under a completely revised scheme of statutory regulations.

The third course was eventually adopted.

Summary of Main Provisions of the 1921 Act.

The Railways Bill, finally presented in 1921, had been in preparation since 1919. In that year the Ministry of Transport was created, for the purpose of dealing with post-war transport problems. In the following year the new Ministry issued a White Paper entitled "Outline of Proposals as to the Future Organization of Transport Undertakings in Great Britain, and their Relation to the State." Out of this White Paper was evolved the new Railways Act, which came into operation on 19th August, 1921, four days after the railways had been restored to their owners by the Government.

Operation and Service.

Roughly, the Act provided that the railways of Great Britain, with the exception of light railways, and a few other lines, should be grouped into four systems. This grouping was to be put into practical effect not later than July, 1923.

Equipment, accounting, and statistics were to be standardized. The Ministry of Transport was given power to require the railways—after consultation with experts, and after the Railway and Canal Commission had been satisfied that the interests of the investors were not threatened—gradually to conform to the measures of standardization of wages, plant, and equipment. Accounts were to be rendered in such a manner as might be determined by the Railway Clearing House, with the approval of the Minister, or by the Minister in consultation with approved accounting experts. The

railways were to submit to the Minister of Transport further statistics defined by an elaborate schedule in the Act (Railways Act, 1921, 77 (2) and Schedule 8).

The Minister of Transport was given further power to adopt schemes for co-operative working, and common use of rolling stock, workshops, manufacturing plants, and other facilities, after consultation with specialists in those fields and after the Railway and Canal Commission had been satisfied that vested interests were not adversely affected.

For the protection of the public, the State asserted its right, following on proper application by interested parties, to compel railway companies to afford reasonable facilities, and to make extensions and improvements, including minor alterations of a cost not exceeding £100,000, provided, firstly, that such application should have received the approval of the Railway and Canal Commission, as guardian of the interests of shareholders, and, secondly, that such improvements should be in the interests of public safety, or of trade, or of some particular locality. Any changes of the character here indicated, made on the initiative of the railway companies themselves, were to be conditional upon the approval of the Minister of Transport.

Rates.

The Railways Act of 1921 in no way guaranteed railway earnings: it announced an entirely new policy with regard to the general level of rates. The level of rates and fares in the future should be such as would, together with other sources of revenue, yield, with efficient and economic working and management, an annual net revenue equivalent to that of 1913. Provision was also made for remuneration on account of

capital expenditure made since 1913, and for capital which in 1913 had not become remunerative. Any substantial excess over this standard revenue, if it was deemed to indicate a revenue increase of a permanent character, was to be shared between the railways and users in the ratio of one to four. Thus, if £1,000,000 was earned above the standard revenue, £800,000 would go to the reduction of rates of charge, and the remaining £200,000 would constitute a permanent addition to the standard revenue.

The Railway Rates Tribunal was established, with general power to fix such rates as would enable the railways to earn the standard revenue under conditions of efficient and economical management. The full exercise of the powers of the Rates Tribunal was, however, to be delayed until the "appointed day," ultimately fixed for 1st January, 1928.

It is important to notice in passing that any surplus earned above the standard revenue, prior to the revision of rates, is to be retained by the railways. A reduction in rates, if decided upon by the Rates Tribunal, cannot come into effect for some time after the compilation of the annual reports, and the examination of the position. Although the railways would seem to gain by this time lag, they suffer a corresponding disadvantage if they should fail to earn the standard revenue, as is, of course, the case at the present time. In practice, although the railways have by no means earned the standard revenue, the adequate raising of their rates of charge has been rendered impossible and impolitic by uneconomic road competition, and by the state of industry generally. It is very difficult to raise prices during slump periods.

Labour.

The Central Wages Board, and the National Wages Board, which were constituted in 1919, were continued under the sanction of the Railways Act, 1921. To these Boards were to be referred all questions relating to rates of pay, hours of duty, or other conditions of service. The Central Wages Board was composed of eight representatives of labour, and eight representatives of the railways. The National Wages Board, to which appeal might be made from the Central Wages Board, was constituted as a body of seventeen members, of whom six were to represent labour, six the railways, and four the users of the railways, while an independent chairman was to be appointed by the Minister of Labour. Provision was made by law for establishing, on the four group railways, councils consisting of representatives of the workers and of the railway companies. Special arrangements were made for dealing with difficulties between the railway companies and their own police force.

The Railways Act contained one very important provision dealing with the problem of labour displacement due to amalgamation. Any person who had been a "permanent" employee for five years before August, 1921, in any of the absorbed or constituent companies was assured either continuance of employment in at least as high a grade in the newly-formed company, or compensation.

Effect of 1921 Act.

Having given a rough outline of the main provisions of the Act, we may now proceed to examine its effects on the railways. The primary object of the Railways Act was to promote more efficient and economical working,

but its first effect was to create chaos. This is not surprising when we consider the magnitude of the undertaking; all the separate concerns were to be organized into four group companies—voluntarily, but with an underlying threat of compulsion in case of failure. The economies of operation have naturally been slow in appearing. Rome was not built in a day, nor can an amalgamation of this size be carried out, organized, rationalized, and made efficient in a day. Particularly is this so when it is only possible to eliminate labour rendered superfluous by the amalgamation, as and when it is superannuated. Large sums of money have had to be spent in order to economize, and this expenditure is not yet fully remunerative. Nevertheless, large economies are now maturing, and these, combined with an increase in trade, and with efficient staffing and working of the railways should soon enable the standard revenue to be earned.

As to the effect of the Railways Act upon railway employees—up to the present they have been the principal gainers. They have especially benefited by the increase in wages, rendered possible only by the low capitalized value of the railways and the limit to the amount of interest that may be earned. The railwaymen actually receive twice their pre-war wages, whereas the shareholders are paid, at best, only as much as before the war, and, at worst, nothing.

To consider the case of the traders: they have the use of a complete transport business capitalized at pre-war prices, and they pay the shareholders, in actual purchasing power, only half as much as they did before the War. Of course, they have to bear the increased cost of labour for running the transport machine, but the fact remains that they do not pay as much as they

should do as remuneration to the capital invested. Moreover, if the railways earn more than the standard revenue (which has only half the purchasing power of 1913) 80 per cent of this surplus has to go to a reduction of rates and charges. It may be admitted, however, that the system makes for efficiency and economy, in that all parties stand to benefit by efficient and economical working.

The position is briefly as follows. The standard dividend can only be earned by increasing both passenger and goods traffic on the railways, thereby increasing the load factor and enabling charges to be reduced, and railway travel to be made cheaper and more popular. In other words: more goods, lower charges; more passengers, higher revenue; higher revenue, lower fares. Under these conditions the community receives a very large measure of benefit in cheaper travel and lower prices.

Uneconomic competition between the railway groups is obviously not conducive to efficiency of operation, economy, or lower charges. Similarly, uneconomic competition by parallel road transport services does not lead to lower transport costs for the country as a whole. We have asked the railway companies to develop the traffic of the country, and then we have allowed an outside company to come in, run a parallel line, or run buses and motor lorries alongside, thus practically stealing the traffic from the established company that has built it up. Competition of this kind is destructive, wasteful, unfair to the companies, and of no benefit to the community.

CHAPTER III

THE DEVELOPMENT OF THE PETROL ENGINE

It is obvious that the Railways Act did not permit the creation of a monopoly. Sect. 19 of the Act states: "It shall not be lawful for any constituent . . . or amalgamated company without the consent of the Minister to enter into agreements . . . with any other amalgamated company . . . for the allocation of traffic or the pooling of receipts, or otherwise for effecting a combination which would contravene the purpose of the Act." With the development of the petrol engine as a competitor with the railways, an amendment of the above section is now necessary, for competition between the group companies and the road transport industry has developed into economic waste.

The remarkable development of the petrol engine was not foreseen by the promoters of the Railways Act, but it has since opened up a new transport era. Let us see what are the advantages claimed for the petrol engine over the railway; not only natural economic advantages, but also fictitious advantages which, when they come to be analysed, are found to be due to a form of subsidy by the community.

Advantages of Road Transport Analysed.

The railways do not cover the whole country, nor is it necessary that they should; the capital cost would be too great, and the amount of traffic in most areas where there are no railway lines is insufficient to warrant the necessary expenditure. Areas of this kind are best worked from a rail-head by motor wagon and passenger

coach. This is a true economic use of road transport. Again, there are certain branch lines that ought to form rail-heads and be worked with motor transport roads as feeders. This is another legitimate economic field for motor transport. In certain cases where short hauls are required—say, about ten miles—motor transport is quicker, less costly, more convenient, and entails less packing and handling.

Passenger traffic within, say, a five-mile radius of any town is an economic proposition for road transport. With the extension of our towns the railway is, in many cases, too far away from the homes of the people, and under these conditions tram and bus traffic is sound.

The long distance buses on the road to-day carry passengers very cheaply. For instance, a passenger may travel from Halifax to Blackpool for 10s. as compared with a railway charge of approximately 15s., so that there appears to be a strong presumption in favour of road travel. But let us consider the reasons why the bus can quote lower prices for travel than the railway.

1. The railway companies have to provide their own track, storage room, and railway stations. The capital cost of their permanent way is approximately £800,000,000, representing a mileage of 50,000 miles single track. This permanent way belongs to the railway companies, and it has been paid for.

2. The maintenance of the track and stations is at the charge of the railway companies.

3. The railway companies pay for their own signalling.

4. The Government regulations as regards safety are very stringent and costly, and the companies are responsible for their carrying out.

5. The drivers, guards, and signalmen are a body of highly-trained and well-paid servants.

Road Transport Uneconomically Subsidized.

The development of road transport, on the other hand, is only made possible by the existence of a good road system; the road must always come before the motor. In Great Britain a comparatively good road system already existed before the emergence of the modern road transport industry. In 1900 we had approximately 175,000 miles of road; by 1927 this figure had been increased to 180,000 miles. These 180,000 miles of road belong to the community, and their capital cost has been paid by the community. Road transport has the use—without payment—of all this capital invested by the community in the road system.

In 1900 there were practically no petrol road vehicles, while there were 175,000 miles of road. In 1927 there were 180,000 miles of road, an increase of 5,000 miles, so that the remarks above are substantially correct, because even if road transport has paid for the extra 5,000 miles of road built during the past twenty-five years, it still uses 97 per cent of the total road system free of capital cost and interest charges. If the road transport companies had to pay the interest on the capital cost of the roads of this country, their charges would be double the charges of the railway companies.

Moreover, road transport enjoys other advantages, if not entirely without payment, at all events for a very small cost, in the services of the A.A. and the R.A.C., which are paid for by the private motorists.

Disadvantages Under which Railway Companies Work.

Besides the fact that the railways are not subsidized

in any way by the Government or the ratepayers, it must be remembered that they are common carriers, and hence in a position to suffer other disadvantages. As an illustration, let us consider the case of a 5-ton load of high-class goods conveyed by road from Halifax to Manchester. The lorry starts from Halifax, using the road, part of which is kept in order by the ratepayers or by the tramway company, who have to keep in repair 18 inches on either side of the tram track. Anyone who watches the lorry go along the road will see that this section of the road is as much used by the lorries as by the trams. The other part of the road is maintained by local rates and national taxes. The lorry is piloted past all dangerous crossings by the police on point duty, who are also paid out of local rates and national taxes. It proceeds through various villages and towns where the appropriate county councils or local councils pay the cost of the upkeep of the road over which it passes. Eventually it reaches Manchester, after a great deal of piloting through traffic, performed by the police on point duty free of all charge, and delivers its goods at the door of the receiver. On the return journey, another high-class load is picked up in Manchester, and the whole sequence of events is as before. The goods arrive in Halifax, and are delivered at the door of the receiver. Our consideration of the matter must not, however, end here. The lorry has taken two good paying loads, one to Manchester, and the other back to Halifax, but what about the empty cases in which the goods have been carried? The lorry does not want the low-class load, or the low-paying load, and the "returned empties" are sent by rail at a very low rate. The railway companies may not refuse this traffic.

No right thinking person would argue that this is a

fair state of affairs. If road transport paid its economic price for running on the roads the railways would have no cause for complaint, but during the last twenty-five years £500,000,000 have been spent on the roads of this country, two-thirds of which have been supplied by the taxpayers, and only one-third by the road users. It is evident, therefore, that a huge subsidy has been given to the users of the road, but even this account does not disclose the whole of the subsidy. We must take into account the damage caused by road transport to the tram track itself, damage which has to be paid for either by the tramway company, or, in the case of the municipally-owned trams, by the ratepayers. Nor is this all. Street widenings have to be carried out to accommodate the great increase in road transport, mainly caused by the heavy lorries and buses that run through the towns. This hidden cost is incurred over the whole country. The amount of money spent on the upkeep of the roads is roughly £50,000,000 per year, but this amount does not include the cost of street widenings in the various towns throughout the land. When allowance is made for the cost of buildings that have to be bought and the sums that have to be paid by our various municipalities in compensation for loss of business due to the widening of streets in the towns, there must be a further expenditure of £50,000,000 per year. Included in this amount is the loss of rateable value of property pulled down, legal costs and inquiries, and additional cost of upkeep of wider roads; all this expenditure is due to the increase in traffic, more especially to heavy traffic.

Every one knows that the lorries daily carry through our towns tremendously heavy loads that should be conveyed by rail and kept off the roads altogether.

Difference between Apparent and Real Costs of Road Transport.

Now let us look at another important point. The gross traffic carried by all the four group railway companies is approximately £200,000,000 per year. The total amount spent on the roads in upkeep, new road-building, and street-widenings is approximately £100,000,000 per year.

Probably a fair estimate of the whole traffic conveyed by road transport in the country would be £100,000,000. What does this mean? It means that every £1 worth of transport carried by road has cost £2. £1, less profit, has been the cost to the road transport company. £1 has been the cost to the community, paid by the taxpayer and the ratepayer. The railway companies, being large ratepayers, bear a considerable part of this cost.

The difference between apparent and actual cost would be further accentuated if the interest on the capital cost of the roads were added to this figure. Road transport has the use of the roads free of any charge for interest on the capital invested in the roads by the community. There is no legal limit to the interest which may be earned on the capital invested in the transport companies. These companies are thus at liberty to make full use of the national road system, and to make profit out of capital which belongs to the nation.

The foregoing remarks, give, I think, an idea of the uneconomic competition which the railways have to face. The railway companies were asked to develop the transport system of the country. This they undoubtedly did, but they did not expect that other forms of transport—forms, moreover, which are uneconomically subsidized by the community—would be allowed to

come in and take from them the traffic which they had developed. While the railways give regular service all over the country, road transport chooses the best paying traffic—running parallel with the railways and simply stealing their traffic. At the same time, the railways, being common carriers, are obliged to take on the low-class traffic refused by the road transport companies.

Let me submit another example of the unfairness of the division of traffic between road and rail. Suppose a firm of manufacturers has a 5-ton lot of goods to send from Halifax to Bradford, a distance of eight miles. This load goes by road, as it can be delivered in the time that it would take to carry it down to the railway station and put it on rail. Now suppose the same firm has another 5-ton lot of goods, all made up in packages of 28 lbs. each, making a total of 400 packages, each addressed to a different town from Land's End to John o' Groats. Does this load go by road transport? No, by rail. No wonder that the average weight per consignment of goods carried by the railway company tends to diminish, thereby increasing costs!

This uneconomic competition between road and rail increases the cost of transport throughout the country; it lowers the load factor of the railways and is responsible for the economic waste occasioned by the parallel running of two forms of transport, both half-loaded.

I think the preceding remarks show the necessity for the control of road transport in the interests of the community.

Road Transport Powers for the Railways.

We have now traced the uneconomic efforts of the development of the petrol engine on transport as a whole. It will be seen that road transport powers for

the railways were an essential condition to the placing of the transport system of the country on a sound economic basis. After a great deal of opposition by various interested parties, railways were granted road powers in August, 1928, by a large majority in Parliament.

A Royal Commission is now sitting to investigate the whole question of the country's transport; and I think that wise recommendations by such a commission would provide for the compulsory co-ordination of road and rail. The issue of licences under the Ministry of Transport for both passenger and goods vehicles will probably be made compulsory. It is quite likely that the four group railways may be merged into one, thus making possible further economies of operation. The Royal Commission would be wise to go a step farther, and recommend that the railway companies and the road transport companies be combined into a single public undertaking under an extension of the Railways Act, 1921.

It is essential that transport should be cheap, and that a limitation on the interest that can be earned on capital invested in the road transport industry should be enforced. Such a limitation will emerge in the natural course of events, because the railway companies, in order to improve the quality of the service they offer, will inevitably extend their road transport activities. As they do this, the limitations in the Standard Revenue Clause of the 1921 Act will gradually make themselves felt over the field of road transport.

The control of the whole of the country's transport by the railway companies is no more than a natural economic development. The railway companies developed to a large extent the existing traffic. Moreover,

it is in the general interest that the community's roads, if they are to be exploited free of any interest on their capital cost, should be used by the railway companies, who are obliged, under the Railways Act, 1921, to hand back in the form of lower passenger rates and goods charges any surplus profits they may make.

The control of all transport by this means would mean, not nationalization, but that the State should act as an intelligent arbiter. Under a system of this kind we should enjoy the benefits of nationalization without suffering from its disadvantages. The necessary incentive to efficiency and economy would be provided by the participation of the shareholders to the extent of 20 per cent of any increase in net revenue—as provided by the 1921 Railways Act.

Railways Act Capital Tax.

Incidentally, such a measure would help to compensate the railway shareholders for the injustice they have suffered under the Act, which has deprived them of the increased capital value of their holdings. The capital value of the railways to-day is at least £2,500,000,000, and the Railways Act has limited the dividend that can be earned on this valuable property to approximately £50,000,000 a year. In fact, this amounts to a capital tax on the railway shareholders of £1,250,000,000.

I wonder how many shareholders realize what has happened during the last ten years. I trust that this book will help those who read it to an understanding of the recent history of the railways and an intelligent interest in the transport system of the country. A more enlightened use of the voting power of railway shareholders could do much to hasten the return of

prosperity to the railways, and, indeed, to the transport industry as a whole.

Standardization of Railways' Road Transport.

The railways to-day own a large number of petrol machines both for passengers and goods, and it is essential that standardization on to as few models as possible should be effected. Otherwise the same chaotic conditions will develop as existed before the railway amalgamations—when hundreds of different replacement parts were required, where, under a regime of standardization, ten parts would have sufficed. We must profit by our past experience in this respect, and realize that such standardization can be carried out much more easily and economically now than ten years hence. The importance of this point for future earning capacity can hardly be overstressed at a time when the railways are purchasing shares in road transport companies. Standardization means fewer spare parts, and fewer complete machines as spares, together with less delay on breakdown work. The men in charge of repair work become accustomed to the standard types and do their work with greater speed and efficiency. Standardization means the employment of less capital for the same results, and lowers the operating ratio, bringing a higher net revenue, and hence lower charges for the public. The railways must not rush headlong into large-scale road transport operations without paying due regard to this question of standardization. Such a policy would result in over-capitalization and inefficient road transport for some years to come, with the prospect of the same painful process of overdue standardization as the railway industry has just had to undergo. This can, and must, be avoided.

Air Transport.

Remarkable developments are taking place in air transport, and the railways have powers to take part in these developments. Progress in this direction should be accelerated, and the railways should show initiative, enterprise, and forethought, with the ultimate object of co-ordinating road, rail, and air transport. The provision of facilities for all three types should be borne in mind in the building and alteration of stations. Landing places for aeroplanes could be provided in line with the station roof on the last half-mile of track coming into a station, so as to enable passengers to make combined road, rail, and air journeys. The need of trained air pilots in case of war makes for the advisability of a State subsidy to the air transport industry in the early stages of its development. If there is another war, in all probability it will be fought largely in the air. Everybody hopes that there will be no more war, but nevertheless it is as well to be prepared.

The development of air transport within our country is not likely to be very rapid for a few years to come, because of the comparatively small distances between our most extreme points of travel. Progress is likely to be more rapid in larger countries like America and Canada where distances are much greater. Nevertheless the Continental and Empire air transport services give promise of rapid growth, and it should be the policy of the railways to keep in the forefront of all possible developments. No one can tell what the morrow may bring forth. The helicopter might come within the bounds of the practicable, and in that case internal air traffic would make great strides. There is no branch of economic science so dynamic as transport economics.

CHAPTER IV

THE ESSENTIALS OF A PERFECT SYSTEM OF TRANSPORT

LET us consider what are the essentials of a perfect transport system, able to satisfy the requirements of the community with all possible efficiency and economy.

✓1. It should be very cheap.

2. It should be readily available for the use of every member of the community. This implies that some part of the system should pass his door.

3. It should be comfortable and safe.

4. It should be sufficiently flexible to meet all demands upon its services.

5. Transportation should be effected at as high a speed as is compatible with safety.

6. The system should be run on scientific lines, and in accordance with the laws of economics and finance.

✓7. There should be a limit to the interest which may be earned on the capital invested.

8. There should be no subsidy, unless a new form of transport should make this necessary in the interests of the nation, as, for instance, in time of war.

9. The system should be run as a monopoly. The very nature of the undertaking makes this an essential condition to efficient running, where areas of greatly varying density of population have alike to be served.

10. Our transport system should not be nationalized: it should be such as to give us the benefits of nationalization without its disadvantages.

11. It should be run on the lines of public utility enterprises.

12. The wages of its employees should be good, but not exorbitantly high. Labour should be recompensed according to the value of its services, and it should be borne in mind that transport is a basic as well as a sheltered industry.

13. The system should be kept absolutely up to date by an efficient research department, and it is important that this department should not be starved, for that would be false economy, particularly in an industry so dynamic as that of transport.

14. There should be a reserve fund for the redemption of obsolescent capital, so that the system may not become over-capitalized.

15. The system should be a co-ordination of two different existing forms of transport, such as to use each form in its proper economic sphere, and to bring the load factor of the complete system as near as possible to unity, thereby getting the maximum return on the minimum outlay.

Transport is now effected by rail, ship, canal, road, and air. Let us see how a combination of these means of transport can best be developed into the cheap and efficient system that is so necessary in order to enable us, as a manufacturing nation, to reduce our costs of production. We shall see, first of all, that the basis of the transport system in any highly-developed country is now, and for another hundred years will remain, the railways.

The Railways as the Basis of Our Transport System.

The economic development of a country is in direct proportion to the efficiency of its system of transport. The country that first co-ordinates and rationalizes

its various means of transport will gain a tremendous industrial lead over the rest of the world. Now the railway, besides carrying two-thirds of the total internal traffic of the country, and practically all the heavy traffic on which our basic industries depend, is the form of transport that is capable of the greatest expansion, and that possesses, technically, the greatest inherent advantages. Hence, obviously, our object should be the increase of transport efficiency, using the railways as a base. Having come to this decision, we must next see whether the railway portion of our transport system is itself efficient and then—another important point—whether it is not over-capitalized. Let us, then, examine the position of our railways from these two points of view. We shall first consider their financial situation, and then proceed to deal with the question of efficiency.

The Financial Position of the Railways.

The London & North-Eastern Railway Company, judged by Stock Exchange figures, and the return on its ordinary stock, seems to be, of all the four group railways, the least favourably placed from the financial point of view. Let us, therefore, analyse the position of this company with regard to the assets representing its capital. Such an investigation will apply, *mutatis mutandis*, to the other railway companies, so that we shall thus arrive at an estimate of the true economic position of British railways as a whole.

The L.N.E.R. Co. has share capital amounting to £257,000,000, and £114,000,000 debenture stock, making a total capital of £371,000,000, as against capital expenditure of £328,000,000 (these figures are approximate). This capital expenditure was incurred before the

War, and the assets it represents are valued at pre-war prices, so that if a re-valuation of the assets of the L.N.E.R. Co. were made under present conditions, a figure of at least £600,000,000 would in all probability be reached. Hence it is evident that the change in economic conditions has long ago squeezed out any element of watered capital that may have been present. In fact, on the assumption that the railway would be rebuilt to-day exactly as it now stands, the L.N.E.R. is actually under-capitalized to the tune of £229,000,000. We cannot, however, make such an assumption. Certain of the branch lines are now unremunerative, having been rendered more or less obsolete by such factors as the building of new roads, the migration of industry to points beyond their scope, and the emergence of a more flexible means of transport in the form of the petrol-driven vehicle, running on a permanent way provided by the benevolent payers of rates and taxes for a very low charge in motor taxation. Any branch lines which are not sufficiently remunerative, and cannot be made remunerative by a more equitable and economic distribution of transport taxes, should be closed, unless they can be made to pay purely as goods lines, worked as a rail-head, and fed by motor transport from a wide area. If, after proper examination of the finances of every branch line on the L.N.E.R., the unremunerative lines were closed, the assets and earning capacity of the main lines and of the remaining branch lines would be more than sufficient to cover the interest on the whole share capital of the company, even if it is assumed that the assets contained in the unremunerative branch lines represent no capital value whatever.

The renewal of worn-out plant, and the "maintenance of way and works" are carried out by a method which

makes the finances of the railway companies particularly sound. An illustration may make this clear. Let us suppose that a bridge requires complete renewal, and that the old bridge stands in the capital account of the railway company at £50,000, which was the cost of its erection in 1870. If, owing to the increase in price levels, the cost of renewing the bridge is £110,000, £60,000 of this amount will be charged against revenue, and the bridge will still be valued in the capital account at its original cost of £50,000. Suppose the bridge is widened during the reconstruction, and the total cost is £130,000. The bridge will now be entered in the capital account at £70,000, the increase of £20,000 in this account representing the additional asset of a wider bridge. If, on the other hand, the bridge is no longer required, the £50,000 standing in capital account would be written off. The capital expenditure account thus disregards changes in the value of money, and until an asset ceases to be necessary it is retained in capital account at its first cost, however often it may be renewed. Capital expenditure, therefore, represents neither the present value of the assets nor their present replacement cost. This method puts the capital of the railways in a very sound position, and largely prevents over-capitalization.

It is, I think, obvious that the soundness of the financial position of British railways as a whole is beyond question, and that they are undoubtedly in a position to become the basis of the cheap and efficient transport system which is so essential to our future development.

Improving Railway Efficiency.

Now let us consider the railways from our second

point of view: that of efficiency. Undoubtedly there is a great deal of room for progress in this direction. The first step was taken when the 1921 Railways Act compelled the large number of separate railway companies then existing to amalgamate into four groups in the interest of more efficient working. Although the fruits of this amalgamation are now maturing in the shape of large economies, there is still a possibility of further important savings which could be realized by closer co-operation between the four group companies. For instance, there is undoubtedly an unnecessary duplication of transport facilities wherever two railway companies are working from the same town to a common destination. There are many cases of this kind where co-operation between two railway companies would result in more efficient and less costly working.

System of Traffic Pooling.

Such co-operation between railway companies could be carried out by a system of traffic pooling. Some sort of a traffic pool is bound to emerge as soon as one company earns more than its standard revenue. The lowering of rates by this company alone will clearly be impracticable, for it would have the result of diverting traffic from other companies wherever it entered into competition with them—obviously an undesirable result.

Some form of traffic pool, then, would be necessary, and would immediately increase railway efficiency. Sect. 19 of the Railways Act, 1921—quoted in Chapter III—reads—

It shall not be lawful for any constituent . . . or amalgamated company without the consent of the Minister to enter into agreement . . . with any other amalgamated

company . . . for the amalgamation of traffic or the pooling of receipts, or otherwise for effecting a combination which would contravene the purpose of this Act.

Obviously, this clause stands in the way of further economies, and the matter should be taken up by the railway companies with the Minister of Transport. As soon as any company earns a margin above the standard revenue, a pool might be formed for the 80 per cent surplus, and the reduction of rates might be postponed until a surplus above standard revenue is made by all the four group companies. Such a measure would be no more than fair treatment of the shareholders, to whom some consideration ought to be shown.

Perhaps an example will make this point clear. Suppose—as is quite possible—that the L.M.S.R. earns a surplus of £2,000,000 over its standard revenue, and that this surplus is likely to be permanent. Under the 1921 Act £400,000 of this amount would be added to the standard revenue of that company, and £1,600,000 would go to the reduction of its rates of charge for passengers and goods. Suppose that at the same time the L.N.E.R., which runs in parallel with the L.M.S., and has many joint stations, has not reached its standard revenue, and is, in fact, £1,000,000 below this amount, so that £1,000,000 has to be imposed in increased charges. A trader has to send a 5-ton load of goods from Halifax to Leeds. Both the L.M.S.R. and the L.N.E.R. operate between these two lines. Both railways originally charged, say, 10s. per ton for this journey, but now the L.M.S.R. has to reduce its charge to 9s. in order to diminish its earnings, while the deficit of the L.N.E.R. has obliged that company to raise its charges to 11s. Obviously, our trader will send his 5-ton load by L.M.S.R. for 45s. rather than pay 55s. to send it

by L.N.E.R. As a result the L.M.S.R. traffic increases still further while the L.N.E.R. traffic shrinks, making the net revenue still less. It would appear that the only satisfactory solution is the pooling of all surplus revenue.

To illustrate the operation of such a pool from the same example: the L.M.S.R.'s surplus of £1,600,000 would be pooled, and, after the L.N.E.R. had drawn out the £1,000,000 to meet its deficit, the remaining £600,000 would be available for rate reductions on both companies. This would tend to alleviate the effects upon railway revenue of the ups and downs of trade: thus, when the coal trade was good, the L.N.E.R. would be paying into the pool, and when the cotton trade was bad, the L.M.S.R. would be drawing out. Such an arrangement would standardize rates of charge throughout the country for both passengers and goods, and would operate more equitably from the point of view of the shareholders, who have no redress for loss of dividend when the standard revenue is not earned.

Segregation and Standardization.

The concentration of the manufacture of particular types of locomotive upon individual works and the running of these works at maximum load factor would result in another increase in efficiency, which could be further enhanced by the installation of labour-saving plant. Standardization of equipment in passenger coaches, wagons, locomotives, permanent-way materials, and signalling apparatus, not only within the individual group company, but among all the four group companies, would be another important means of increasing efficiency, and would, moreover, improve the load factor of railway workshops, and lower "on cost" charges.

The formation of a research department—under the joint control of the four group companies—which should consider all problems, both technical and economic, affecting the transport system, would be a sound investment, worth many times its cost to the railways.

Co-ordination of Railway and Omnibus Services.

The perfect system of transport should be available for the use of every person. Some part of it should pass his door. This service can obviously not be performed by the railway engine, but it is not an impossibility for the motor omnibus, which should be used as the part of the transport system responsible for bringing passengers to the railway, thus helping to increase its load factor.

The main economic advantage of road over rail transport is that of flexibility. Now it is precisely this new flexible arm that is needed to extend our railway system. In fact, the co-ordination of the two means of transport is absolutely vital.

Almost the whole of the capital invested in the railway companies is immobilized, and if a section of the railway becomes useless through any cause whatever it is not possible to remove it to another position where it would be useful. This may apply to a branch line which has become unremunerative, like the branch line to Stainland, near Halifax. Such a section of line becomes an absolute loss and a burden on the undertaking. In road transport the whole of the capital is mobile, and if a service is started in a certain district where it does not pay, it can later be transferred to another district where it will be more remunerative. No capital is lost in such a case since the motor company

does not own the permanent way and has practically no stations. Neither has it any legal obligations with regard to services, workmen's fares, etc.

Co-ordination between road and rail could be brought about as follows—

1. Road transport has no interest to pay on the capital invested in the roads, as these belong to the community. The purchase of the railroads by the Government would leave the railway companies to run on the permanent way free of cost except as regards upkeep, and would place road and rail on a fair basis.

2. Under the Railways Act, 1921, the interest that may be earned on capital invested in the railway transport system is limited. The grant to the railways of a monopoly of both road and rail traffic would safeguard the community in that any profit made out of the use of its roads would be handed back to it in the form of lower transport rates. The State would act as an intelligent arbiter, and the system would ensure the advantages of nationalization whilst avoiding its drawbacks.

3. As an alternative means of bringing about the co-ordination of road and rail, the road transport industry might pay interest on the cost of the roads, and the Road Fund might be made responsible for a much larger proportion of all road maintenance besides the entire cost of new roads, road improvements, and street widenings. A central authority might license and regulate omnibus and charabanc traffic with due regard for local conditions and the possibilities of road and rail co-ordination. If road transport were made subject to more stringent conditions in the matter of legal obligations and the responsibility for economic costs, the co-ordination of road and rail would be much more feasible. The Royal Commission on Transport, now sitting, will undoubtedly lay great stress on this question of the necessity for the co-ordination of road and rail transport services.

Reconstruction of Stations.

Many of our existing railway stations offer scope for very much more efficient use than is at present made of them. Leeds new station is a case in point. This station

is entirely built upon arches, and the space beneath could be made into an ideal central bus station. Such a bus station would be worth thousands of pounds a year to the L.N.E.R. and L.M.S.R. companies. With slight alterations it would be possible to connect the railway and bus stations by means of lifts and escalators. Passengers coming into Leeds station from, say, Bridlington, or Scarborough, would only need to go down the lift to catch the appropriate bus for any part of the town. One way traffic in and out of the bus station could easily be arranged. It would be comparatively simple and not too costly to carry out this scheme, as only slight structural alterations would be required besides the necessary lifts, lighting, and ventilation. There are many stations throughout the country where similar schemes could be applied, and would considerably increase the efficiency and earning capacity of the railways.

When stations require rebuilding, they should be planned to accommodate railway traffic on the ground floor, buses on the first floor, and aeroplanes on the roof of the first floor. This method of construction would be cheaper than that used in most of our large stations, because it would entail very much less outlay for the upkeep of ironwork and glass. There would be an increase in the cost of lighting and ventilating, but this would be less than sufficient to offset the present cost of upkeep of our large stations.

There is no reason why a construction of this type should not be planned so as to embody a shopping centre which would attract traffic to the whole system, while the rents of the shops would go far towards paying the interest on the capital expended in erecting the station. A greatly increased revenue would doubtless be

obtained from stations built in this way. Buses would come in at one end of the station, go up by lift to the first floor, take on the passengers—who had been spending any time they had to spare in looking round the shops—travel to the other end of the station, go down to the road level by lift, and thence to their destinations. Such planning would help to solve the traffic problem at all the London stations.

Selling Transport.

Early this year the Prince of Wales pointed out the necessity for the better salesmanship of British goods. His remarks apply equally well to the sale of transport in Britain. The railways are fortunately placed in that they offer for sale something which is in constant and general demand, namely transport. But this demand is no longer limited to railway transport; at one time the consumers were all dependent on the railways for the carriage of goods, but to-day they make a choice as to who shall carry their goods. This new situation calls for an entirely new outlook on the part of the railway companies.

When a manufacturer puts a new product on the market he advertises it so well that everybody knows about it, and he is not content until everybody is buying it. The railways, too, must adopt modern business methods of salesmanship. In the *Sunday Times* for 25th August, 1929, the four group companies occupied almost half a page with an advertisement of tourist tickets. After careful perusal, the newspaper reader could gather the following information—

Travelling with a tourist ticket he could use any train, break his journey, and stay away for three months. Tourist tickets were cheaper than ordinary rail tickets. He could

reach his destination more quickly by rail than by any other means. Programmes containing full information were obtainable at any railway station or railway office.

The information he really required, namely, "How much cheaper were tourist tickets than ordinary tickets?" was not to be found. He must go to the railway station for further information. Now it is just as improbable that he would do this as it is that people should walk a mile to the station in order to travel by train when a bus passing the end of their street will convey them to the same destination at half the cost charged by the railway.

The type of advertisement, whether by newspaper or poster, which offers "full particulars on application," instead of giving, then and there, the information required by the consuming public, is simply a waste of money—and such advertising seems to be the common practice of the railway companies. If goods are to be sold, the potential customer must be unremittingly pursued. It does not matter whether it is transport or toffee that is offered for sale, the same law applies. Undoubtedly, there is considerable room for improvement in the sales organization of our rail transport industry.

It would be a distinct advantage to all concerned if the railway companies were to arrange for the holding of discussions and debates on the pros and cons of rail and road transport, in every town of considerable size throughout the country. The general public might thus be brought to realize what are the actual problems with which our transport industry is faced. Such an education of public opinion would constitute a really enlightened salesmanship policy. Of course, something is already being done in this direction, but only on a

very small scale, and much greater efforts are still required.

Improving Commercial Efficiency.

Now let us see by what means the commercial efficiency of British railways can be improved, other than by the combination of rail, road, canal, and air route, to make one harmonious system. Chief among these other means are the alterations in the system of traffic and passenger rates to which I shall devote my next four chapters.

CHAPTER V

SCHEME FOR IMPROVING THE PASSENGER TRAFFIC ON BRITISH RAILWAYS

SINCE the origin of British railways their rates of charge have always been fixed on the principle of "charging what the traffic will bear," that is to say, as much as can be charged without losing the traffic. The resultant system of rate-fixing has only worked because of the monopolistic conditions prevailing until recent years. Now, in the face of direct competition between the railways and a new means of transport—the petrol engine—with practically unrestricted working, and a subsidized permanent way, that system has broken down. At present, the most important factor affecting the railway's methods of charge is the rate-fixing method used by its most important competitor, the road transport industry. This method is based on the cost of the services rendered. Now the road transport industry is not only the railway's most important competitor: it is also becoming the new flexible arm of the railway itself, and it seems inevitable that the railway should gradually adopt its system of charging. In the past, every railway goods manager has been taught to make it his chief pre-occupation to secure traffic for his company by any means within his power. As a result 80 to 90 per cent of the goods traffic carried on British railways was carried at exceptional rates. Consequently, every firm with a large amount of goods traffic had to employ a man to find out the cheapest rates. In order to get the best rates for the traffic of the firm employing him this man had to be endowed with a well-developed

bump of curiosity and the ability to bully traffic managers, besides being a good bluffer, a "nosy Parker," a mathematician, something of a twister, a gifted liar, and a clairvoyant.

"What the Traffic will Bear."

No two writers seem to be agreed as to the meaning of the phrase "What the traffic will bear." It has varying significance for different people according to their view-point, the view-points of a trader, a railway company, and a rival firm of carriers being entirely distinct. So far as the railway company is concerned, the principle might be thus interpreted: "Bring traffic on to the lines, if possible at a good paying price, failing that, at a reasonable price, failing that, again, at a poor price. When enough traffic has been secured to cover expenses, take on more traffic at cut rates until the railway is employed to its fullest capacity." The principle underlying the phrase "What the traffic will bear" is the sound engineering principle of the "unity load factor," which brings into operation the law of increasing returns. The nearer the load factor of the railway can be made to approach to unity, the more profits can be increased and charges lowered. Now this is the principle embodied in the Railways Act, 1921. The higher the load factor, the lower the rates of charge for both passengers and goods because profits are limited, and the maximum benefit is thus assured to the community.

The abuse of the principle underlying the phrase "What the traffic will bear" has been one of the main causes of the loss of traffic by the railways. It has been responsible, too, for the independent entry of the very large firms into the transport business. I

shall deal with this point in the chapter devoted to the framing of a new system for fixing goods charges.

A New System of Charging.

In my studies of transport in its many forms, and particularly of rail transport, I have been left with one outstanding impression: the necessity of a new system of charging for both goods and passenger traffic. My view-point, as a business man with a training in the electrical industry, and as a student of economics at the University of Leeds, naturally differs from the purely railway point of view. That, however, is rather an advantage than otherwise.

Analogy between Electricity Consumer and Transport Consumer.

I propose to use as an analogy the electrical and gas industries. Let us consider a case where these two industries are both established in the same town. Both are providing necessary public services. Both have the necessary plant and mains distribution systems. Both companies need consumers, one of electricity and the other of gas. Now there are many types of consumer. One consumer may only want a service of gas or electricity to supply one gas light or one 30-watt electric light. Another consumer may use thirty gas lights or thirty electric lamps. Another may require power to run a 5 h.p. motor, or a 5 h.p. gas engine. The variations in the demands of consumers are almost infinite. The number of hours during which consumers use their supply of gas or electricity varies considerably from day to day, and alters according to the seasons.

Let us consider the first consumer—the man who uses one 30-watt lamp—from the point of view of the

electric lighting company. We discover that he uses his one lamp very sparingly, between the hours of 4 p.m. and 6 p.m. in the winter, and not at all in the summer months. His consumption of current amounts to one unit in three weeks during the winter period, so that, allowing four months at this rate, his annual consumption may be calculated at six or seven units. At a very high flat rate price of 8d. per unit the revenue from this consumer is 4s. 8d. per year. He also pays a meter rent of 1s. per quarter, thus bringing his total annual outlay on electricity to 8s. 8d. Eightpence is a very high price for one unit of electricity, and as the cost of generation is in the region of $\frac{3}{4}$ d. per unit, it would appear that there must be a considerable element of profit in the 4s. 8d. he pays. Let us see to what this profit actually amounts. The cost of putting in this consumer's service for supply of electric light was, say, £6 in all—a very low estimate considering that it has to cover the cost of, say, 4 yds. of lead-covered and armoured cable, sealing box and fuses, labour employed on opening up the road and jointing on to the main cable, and all other incidental expenses. Besides this, our consumer employs a certain proportion of the main cable, all the way from the generator, to carry the current required by his 30-watt lamp, and some part of the main generator to generate that current. To sum up, this particular consumer requires: a part of the generator's output—30 watts—a proportion of the main cables to the electricity works, a service into his house from the main cable, a share in the services of the meter inspector who registers his consumption every quarter, and in those of the clerk who sends his account and collects his payment.

Now let us see what this service has cost the

electric lighting company. The account might be expressed as follows—

Cost of .03 kw generating capacity	12
Cost of "x" miles of main cable from house to generating station	12
Cost of installing service	12
Other expenses and standing charges	12
Capital outlay on this consumer	48
Capital depreciation on outlay at say 5 per cent per annum	2.4
Interest on capital at 5 per cent	2.4
Total annual cost to company of this consumer	4.8
Total revenue	8.8
Loss	4.0

Thus, the consumer has had the current for 15s. and less than the cost to the company. Of what use is such a customer to any electric light company, unless it be run by a philanthropist?

Let us now consider the consumer of transport who is in a similar position to this consumer of electricity. Once a year, on August Bank Holiday, a man travels from Halifax to Blackpool, a distance of roughly 60 miles, making the return journey at excursion rate for, say, 5s. August Bank Holiday is the peak load time for passenger traffic. A passenger who only uses the railway once a year at peak load time is useless to the railway company, as he does not pay standing charges on the facilities that are provided for his use. Moreover, unless his comfort is absolutely perfect he grumbles loudly about the facilities provided, the inefficiency of the railway company, and all its officials, and its inferiority to other means of travel. This type of passenger, besides being an uneconomic proposition, does a great deal of harm to the railway company—it would

not pay to carry him at 2s. a mile. Along with other passengers only slightly less unremunerative, he must either be eliminated or put on to a scale that will make him bear a bigger proportion of the standing charges.

Let us suppose that a hundred such passengers occupy a whole railway coach once a year at peak load time. For the other 364 days that coach stands rotting in a siding. Presuming the value of the coach to be £1,000, we may take the interest at 5 per cent to amount to £50. Counting another 5 per cent for depreciation, and a further 5 per cent for upkeep, cleaning, painting, etc., and neglecting standing charges and engine charges, we arrive at a cost of £150 a year on this coach, which must be added to the working costs of the railway company. The revenue from the hundred passengers at a rate of 5s. return is £25, so that there is a net loss on the traffic amounting to £125 a year. It may be argued that all the old stock comes into use at the August peak load time, and that it could not be used otherwise than on cheap excursions. Even admitting the truth of this contention, I cannot agree that passenger traffic on such terms and at such rates is a paying proposition. The only way to make old stock pay is to keep it in use; if it is only to be used once a year at peak load time it would be better to scrap it and eliminate the cost of upkeep. I agree that a full train load of passengers at 5s. return fare from Halifax to Blackpool pays well—but not when it is used only once a year. The load factor of a train used only once a year, for eight hours is $\frac{1}{70}$ or .0014 (that is, the number of times it is used divided by the number of times it might be used). Seven hundred times £25, or £17,500, is the amount that train could earn if run at unity load factor.

This is an extreme example, but it serves, nevertheless, to show the importance of the load factor.

It is obvious that a new system of charges must be developed, and I suggest that these charges should be framed so as to tend towards the improvement of the load factor of the railways and the increase of passenger travel by rail throughout the year. I shall now indicate the line on which it seems to me that this could be done.

Suggested Base for New System.

The main item in the expenses of a transport industry is the cost of its permanent way, and this item should form the basis of the system of charges. The cost of the permanent way remains practically the same whether it is used by one passenger or by 500,000,000—on one day of the year or on 365. But if the permanent way is loaded up to its full extent, that is to say, if its load factor is unity, the cost per passenger journey for the use of the track becomes infinitesimal. Railway charges should be framed with the definite purpose of realizing this ideal. The increase of the load factor of the track is essential if costs are to be reduced.

Let us take as an illustration the London & North-Eastern Railway Company. Of this company's £370,000,000 capital, £250,000,000 represents the permanent way. The interest required to cover the amount at 5 per cent is £12,500,000. This standing charge remains the same whether any use is made of the track or not. Of this amount £6,000,000 should be charged to passenger traffic, and £6,500,000 to goods traffic. Let us deal first with the passenger side of the business. The L.N.E.R. can draw upon a population of roughly 12,000,000 in greater London, and approximately 16,000,000 in the other parts of the country

served by its lines. Now I think it is reasonable to assume that 2,000,000 people, out of these 28,000,000, use the L.N.E.R. fairly regularly. It would, then, be a sound policy to divide the standing charges of the passenger portion of the track between these 2,000,000 passengers, and allow them to use it as much as they like. The standing charge to the individual passenger would work out at £3. To this should be added the cost of running the passenger over the track—that is the actual cost of transportation—which would probably be covered by a charge of $\frac{3}{4}$ d. and $\frac{1}{2}$ d. per mile on first and third-class travel respectively.

The New System of Track Contracts.

We have now arrived at a new system, which would work as follows—

Any passenger on the railway might take out a yearly contract at a price of £3, payable on 1st January. On a basis of 2,000,000 contract passengers the sale of contracts would bring in a yearly revenue of £6,000,000. I think it is reasonable to assume that each passenger who took out a track contract would pay the railway company another £6 per year in fares at $\frac{3}{4}$ d. or $\frac{1}{2}$ d. a mile. This would secure a further income of £12,000,000 a year to the company. To return now to the principle of what the traffic will bear, a good sale would probably be found for first-class track contracts at an annual charge of £4 10s. Such a measure would assure select accommodation to those who desire it, while helping still further to increase the revenue from passenger traffic.

ESTIMATE OF REVENUE UNDER THE SYSTEM

2,000,000 track contracts at £3	£	6,000,000
"Mileage" charges, estimated at £6 per passenger, @ $\frac{1}{2}$ d. per mile		12,000,000

SCHEME FOR IMPROVING THE PASSENGER TRAFFIC 47.

Proceeds from sale of workmen's tickets if still allowed to continue	300,000
Proceeds from excursions if allowed to continue	1,000,000
Proceeds from sale of 500,000 first-class contracts, @ £1 10s. above ordinary contracts counted above	750,000
Revenue from those season ticket holders who find it more to their advantage to continue on this system than to take out track contracts—First and Second Class	500,000
Do do do Third Class	500,000
Revenue from non-contract passengers charged at 1½d. a mile flat rate	1,000,000
	<u>£22,250,000</u>

ACTUAL PASSENGER TRAFFIC AND RECEIPTS, L. N. E. R., 31ST DEC., 1929

Class of Passenger	Number	Receipts	Average Fare per Passenger	Number Originating on the Company's System
<i>Ordinary—</i>	No.	£	s. d.	No.
1st class	3,473,532	999,374	5 10.20	3,154,940
2nd „	1,527,958	135,309	1 9.25	1,516,137
3rd „	155,536,752	10,198,470	1 3.74	145,681,883
Workmen	53,134,700	730,682	0 3.30	49,738,793
TOTAL	213,612,948	12,003,835	1 1.55	200,501,152
<i>Season—</i>				
1st class	24,333	541,592	—	10,646
2nd „	43,789	501,040	—	43,102
3rd „	121,712	1,150,035	—	100,321
TOTAL	189,834	2,192,673	—	103,434

Estimated Increase in Revenue under Suggested Scheme.

From the foregoing tables it will be seen that we estimate that the new system would make possible an increase of approximately £8,000,000 in the revenue drawn from passenger traffic. The application of this new method, with its fair apportionment of the standing

charges, would mean the scientific tapping of a new source of revenue, and the old system of contracts could be continued for those passengers who thought they could travel more cheaply on that system.

Advantages of the Suggested Scheme.

1. Simplification of Rates.

At the maximum the number of rates of charge would be five or six: track contract, third class, £3 per annum, plus ½d. per mile; track contract, first class, £4 10s. per annum plus ¾d. per mile; alternative flat rate of 1½d. per mile; continuation of workmen's fares, if necessary; continuation of existing contract rates where these give even better terms than would be available under the new system, and a few excursion rates at holiday times, if these were deemed necessary in order to meet the needs of poorer passengers. Week-end tickets, tourist tickets, and all other special rates would be abolished, together with all the restrictions appertaining thereto.

2. Increase in the Numbers of First-class Passengers.

The number of people who would take out first-class track contracts would be enormous. For the journey from Halifax to London, for example, the first-class return fare is now £4. Under the new system the first journey would cost £4 10s., plus 400 miles at ¾d. a mile—a total cost of £5 15s. The cost of a second journey would be 25s., thus making an average cost of £3 10s. per journey. When six journeys had been made, the average cost would be £2. To a passenger who made during the year twelve return journeys from Halifax to London, or their equivalent in mileage, the cost would be £1 12s. 6d. for a journey of 400 miles—or just under 1d. per mile.

Under a scheme of this sort a passenger who in the ordinary way only goes up to London once or twice a year, would probably go a dozen times, and take his wife with him. At 1d. per mile first-class travel is very cheap, and, indeed, it ought to be cheap to the passenger with a good load factor. The lowering of the cost of travel depends upon the supply of passengers, but a sufficient number of passengers can be only obtained by the provision of facilities for cheap travel. Under the system here suggested, the passenger who took full advantage of the railway, and all that it had to offer him, would be able to travel at a cheap rate. The cheapness of the fare would depend largely upon himself, and there would be an incentive for him to do as much travelling as possible by rail.

On the L.N.E.R. the number of ordinary first-class passengers is 3,413,532 out of a total of 200,000,000 passengers. The revenue from first-class travel, including contracts, is roughly £1,500,000—just over one-tenth of the total receipts from passenger traffic. There are 25,000 first-class contracts, the average price per contract being £22. It would be easy to sell 500,000 first-class track contracts at £4 10s. plus $\frac{3}{4}$ d. per mile travelled. The present number of first-class contract holders is paltry for a railway of such a size, and the load factor of first-class passenger traffic must be particularly low. If the adoption of the new scheme brought about an undue increase in the proportion of first-class passengers it would be a simple matter to increase the number of first-class carriages.

3. *Increase in Average Fare per Passenger.*

The application of the new scheme would tend to increase the average fare per passenger, because people

would travel farther afield. In many cases a first-class passenger would travel 400 miles for 25s. under the track contract scheme instead of travelling 60 miles for approximately 12s. at the ordinary first-class rates at present in force.

All these factors would work together to increase net revenue and the load factor.

4. *Increase in the Number of Regular Railway Users.*

Occasional railway users could be made into good customers because once they had been persuaded to buy "track contracts" they would begin to plan journeys by rail so as to get the benefit of cheap travel. Their outlook upon railway travel would be entirely changed. At present they scan the excursion bills to find out where they can go, on what date, by what train, and whether they are to be allowed to return on a day convenient to themselves. The usual result is a state of such hopeless confusion that they eventually travel by road. Under the new system they would know that they could go by any train, to any destination, stay as long as they liked, and return by whatever train they chose, with no need to look for restrictions printed in small letters at the foot of railway bills.

5. *Elimination of Competition from the Road Transport Industry*

The new scheme would bring road transport into its proper economic sphere as a flexible arm to rail transport, specially entrusted with the conveyance of passengers to and from the railway. The railway cannot pass everybody's door, but road transport can do this, and it is the performance of precisely this "feeder" service which is so vital to the railways to-day. If road

transport is treated as a natural economic growth and given scope to work as an accessory of the railways, it will be possible for many more passengers than ever before in railway history to be brought quickly and cheaply to the railway station. If the existing road transport firms refuse to co-operate with this end in view, the "track contract" might be extended so as to permit contract holders to use railway-owned buses at a charge of $\frac{3}{4}$ d. a mile.

Long-distance omnibus traffic would prove to be uneconomic when the railways could offer 400 miles of third-class travel for 16s. 8d., in half the time taken by the road transport services, and in greater comfort than they afford. So few people would wish to travel long distances by road that it would no longer pay to run the long-distance services.

6. *Development of Co-operation between Railways and Motor Transport Companies.*

If the "track contract" scheme were introduced the road transport companies would soon be willing to give their co-operation on any terms which the railways might offer. Such terms should, however, be reasonable, as willing co-operation would benefit all concerned in the transport industry, and it must not be forgotten that this industry provides an essential public service which should be run for the benefit of the community.

7. *Re-capture for the Railways of Present Users of Motor-cars.*

There are nearly a million motorists in this country. These people have bought their cars for various purposes, but as our taxation returns give only 1,115,000 people as having incomes of more than £300 a year, it

seems as though many people are running cars who cannot really afford to do so. If such be the case a "track contract" of the kind we suggest might well attract many of these people back to the railway, particularly if such a contract gave the right to the use of the co-ordinated bus system at a charge of $\frac{3}{4}$ d. per mile.

The congestion of the roads, and the difficulty of finding garage accommodation and parking grounds have already left large numbers of car owners in a state of mind where they would gladly travel by rail were lower rates available. As road transport loses its element of novelty other motorists will be inclined to return to the rail. Many people, again, bought cars in order to provide themselves with a means of travel more flexible than anything the railways offered, but if the railway companies improved and cheapened their services, provided more travelling facilities, co-ordinated the bus with the rail system, and removed all the irksome restriction on time of travel—and they could do these things under the track contract scheme—the disadvantage of inflexibility would be very much lessened, and still more car owners would be attracted to railway travel; many of them would find it an advantage to have a track contract besides running a car. If, over the whole country, a million people can afford to pay motor taxation working out at an average of £20, it seems a reasonable assumption that 6,000,000 could afford to buy a "track contract" at an annual payment of £3. Peoples throughout the world have always shown a desire to travel and are ever ready to take advantages of whatever facilities are available, provided the expense entailed is not prohibitive. The cheapest service will always be sure of public support, and if the railways do not give cheap service they will always find themselves

faced with competitors willing to carry at lower rates, and so able to secure the traffic. In co-ordinating road and rail services, the railways must not lose sight of this fact. If the broad policy in the co-ordination of road and rail aims at the provision of cheap service, its success is assured. There will be no doubt as to the response to a co-ordinated transport scheme which is able to offer such inducements as a "track contract" at £3 a year, authorizing the holder to travel by rail at 1d. per mile, and by co-ordinated bus services at $\frac{3}{4}$ d. per mile.

(N.B.— $\frac{3}{4}$ d. per mile is the average rate for passenger traffic in the road transport industry.)

8. *Simplicity of System of Fixing Rates.*

It will be seen how simple would be the application of such a scheme of rates as that suggested above. Now the simpler the system, the greater the number of people who will use it. At present railway rates for passengers are chaotic, with the result that very many people are engaged on unnecessary work either in calculating the rates, or in trying to understand them. The complications involved in travel at excursion rates are a source of such annoyance that many people who would travel by train under simpler conditions actually make their journeys by bus. If the railways make the increase of the load factor of both track and trains the object of their rate-fixing policy, they must eventually arrive at some such scheme as the one I suggest.

The "track contract," on account of its simplicity, lends itself to the mechanical issue of tickets, and hence makes possible a great saving of expense. This factor alone would probably be responsible for an annual saving of at least a million pounds.

9. *Equity of this Method of Fixing Rates.*

Under a flat rate of charge the more a man uses the trains, the larger the proportion of the standing charges which he has to bear. Such a system is obviously wrong. Rates should be so fixed that the more a man uses the trains the lower his charges become, until, finally, he is carried at very little more than the bare cost of transportation because he is a passenger with a good load factor.

10. *Ease of Advertisement.*

Advertisement for so simple a scheme of passenger rates as this could be combined with the advertisement of the railway's facilities for the carriage of goods. Another very important point must not be forgotten; there are a million railway shareholders in this country, and a large proportion of these would undoubtedly take up "track contracts" so as to help the railways back to their former financial position. Some of the 750,000 railwaymen might also take contracts at, say, half rate. At all events these two interested parties together would certainly do good work in making the scheme known, and bringing it into successful operation.

In the case of the less wealthy passengers, payment for the "track contract" might be made through the Yorkshire Penny Bank or some similar institution. This would be an extension of a similar scheme now in operation for the purchase of holiday tickets from the L.N.E.R.

Finally, the track contract offers a great advantage in that it could be operated by all four group companies. I shall deal with this point in the next chapter.

CHAPTER VI

EXTENSION OF TRACK CONTRACTS TO ALL RAILWAYS

We have drawn up for the L.N.E.R. a scheme of passenger rates which works out at an annual payment of £3 for a track contract, plus $\frac{1}{2}$ d. for each mile travelled.

In the case of the L.M.S.R., the amount invested in track represents approximately, £300,000,000. The interest on this sum at 5 per cent is £15,000,000. If we take the proportions of this standing charge to be paid by goods and passenger traffic respectively, as being £8,000,000 and £7,000,000, track contracts can be issued at £3 10s. on a basis of 2,000,000 contract holders.

The G.W.R. has capital investment in track amounting to approximately £120,000,000. The interest on this amount at 5 per cent is £6,000,000. We may apportion this standing charge in a ratio of £3,500,000 to goods, and £2,500,000 to passenger traffic, and we may calculate the price of the track contract at £2, on the assumption that 1,250,000 passengers would take out contracts.

The amount invested in track by the S. R. is approximately £110,000,000. The interest, at 5 per cent, is £5,500,000. As this is largely a passenger line, we might allocate £1,500,000 to the goods portion of the track, and £4,000,000 to passenger traffic. Assuming that 1,300,000 passengers take out track contracts, the charge works out at £3 per contract.

We have now calculated the initial track contract charges for all the four group railways. It would in every case be possible to charge for actual transportation at the same rate as that suggested for the L.N.E.R.

— $\frac{1}{2}$ d. per mile. First-class travel would be available at 50 per cent more than the ordinary rate for both track contract and mileage charges.

Combined Scheme.

We must now extend the principle of the track contract to cover travel on more than one group railway. Let us suppose that a passenger requires to travel on both the L.N.E.R. and the L.M.S.R. If he took out a separate track contract for each system, he would pay £6 10s. per year. But, as he cannot be travelling on both railways at once, a diversity factor comes into play, and permits the issue at, say, £4 10s. of a combined track contract covering both L.N.E.R. and L.M.S.R. The proceeds might be divided between the two companies in the rates of £2 10s. to the L.M.S.R., and £2 to the L.N.E.R. In the same way, track contracts taken out individually for the L.M.S.R. and S.R. would cost £6 10s., but a combined contract could be issued at £4 10s., £2 10s. going to the L.M.S.R., and £2 to the S. R. Similar combined contracts might be issued for the L.N.E.R. and S.R. at £4, and for the L.M.S.R. and G.W.R. at the same price.

Combined Track Contract Scheme to Cover the Whole System.

Now let us consider the question of the issue of track contracts to cover the whole of the British railway system. It would cost £11 10s. annually to take out separate track contracts for all the four group railways. But the passenger cannot be on more than one railway at once, so the diversity factor of his load must be accounted for. Since we assumed the issue of 2,000,000 passenger track contracts, and since the total

number of seats available is 3,250,000, the load factor of the passengers, if they all travelled at once, would be 60 per cent, and the diversity factor would probably work out at 4, which means that 8,000,000 passenger track contracts could be issued to cover the whole railway system at as low a price as £3. On a basis of no more than 2,000,000 passengers, it would be possible to issue an "All Railway Track Contract" at £8, a very reasonable charge for anyone likely to travel on all the four group railways, even to a slight extent.

Grouping into One Public Utility Company.

It is very evident that the combination of the four group railways into one public utility company would be the ideal means of taking full advantage of efficient working. It would ensure a better diversity factor and a better load factor, and increase the benefits that can be passed on to the railway companies' customers. The market for transport would be widened, costs would fall considerably, and transport charges would be simplified and lowered. The simplifications that would result from unification are almost innumerable, and would have a most beneficial effect upon railway efficiency.

I would further suggest that the permanent way of the railways be used as a base for the Electric Grid Distribution System, so further increasing the utility of the railway system.

CHAPTER VII

A NEW SYSTEM OF GOODS CHARGES

Goods charges have been framed in the past on the principle of charging what the traffic would bear, with the result that the existing system is highly complicated, and embodies a large number of exceptional rates. A serious attempt has been made by the Railway Rates Tribunal to do away with exceptional rates and to simplify the system of charges for goods traffic.

Although the Tribunal has not been particularly successful in its results, it has, I think, been guided by the right principle—that contained in a clause of the Railways Act, 1921, “that charges for goods and passenger traffic shall be based so as to bring in the standard revenue.” Translated into terms of practical policy this means that the railways should be run to maximum capacity so as to reduce rates and charges to the lowest figure consistent with due allowance for obsolescent capital, with reasonable rates of interest, and with an adequate reward for efficiency. In other words, the load factor should be increased so as to bring into operation the law of increasing returns. Since the emergence of the petrol engine, the railways have had to face very keen competition from a new form of transport, which bases its charges on the cost of the service rendered. It has, therefore, become more than ever necessary for the railways to work out a new system of charges laying much greater stress on the actual cost of transport.

General Principles of a New System.

It is impossible in a work of this scope to present in detail a comprehensive scheme of charges for goods traffic. I propose, however, to submit in rough outline the general principles of a new scheme.

The first essential of a new system of traffic rates is cheapness, and the second is simplicity. It should be noted at this point that the simplification of railway rates would render unnecessary a great deal of the clerical work now employed in dealing with goods traffic, and this factor alone would reduce costs sufficiently to permit a reduction in rates of charge.

We must endeavour, then, to arrive at some system of railway rates which will combine cheapness with simplicity. If every firm in the country sent all its goods by rail, and if the whole cost of the railway working were proportionately divided amongst all firms according to the number of goods-ton-miles each had consumed, it would be possible to charge remarkably low rates. This system could be applied by a simple method; for every consignment carried, a consignment note stating the weight of the goods carried, the address

RECORD CARD

*1st Sept. to 30th Sept.,
1930*

Name *James Brown & Son, Ltd., Halifax*

Weight of Goods	Destination	Distance	Goods-ton-miles
1½ tons	J. Smith, Leeds	10	20
10 tons	A. Jones, Bradford	8	80
4½ tons	P. Robinson, London	200	900
		Total	1,000

own seat, so that, from the point of view of the railway company passenger traffic presents only two variables: the class of accommodation required, and the distance travelled. In the case of goods traffic, on the other hand, the variables are almost infinite: bulk, weight, value according to bulk, value according to weight, amount of handling required, and so forth. It is this lack of uniformity which has given rise to the multiple classifications of our present complex system of goods charges, and to enormous expenditure on the consequent clerical work. The railways are faced with the problem of simplifying rates without abolishing the necessary differentiation between types of traffic. I suggest that most of these classification charges should be embodied in the "maximum demand" charge, being considered as a standing charge for goods traffic. It would still be necessary to make use of some classifications in the fixing of the goods-ton-mile rate, but these should be reduced to a minimum. It may be objected that the elimination of categories now charged at a high rate would mean considerable loss of revenue. Such a loss would, however, be more than offset by the saving in clerical work consequent upon the simplification of rates.

Maximum Demand System.

Now let us sketch in rough outline a system of goods charges based on a "maximum demand" scheme, with a minimum number of classifications for the charging of mileage rates. I shall work out a scheme for the L.N.E.R. by way of an example, but I would emphasize the fact that the maximum benefit from any scheme of goods charges can only be enjoyed on condition that all the railways are worked as one enterprise.

The standing charges for the portion of the L.N.E.R. track allocated to goods traffic amounts to £6,500,000. In accordance with our decision to reduce to a minimum the number of classification rates, we must deal with as much as possible of the standard goods revenue as if it were a standing charge. The total goods revenue of the L.N.E.R. for 1927 was approximately £36,000,000. Let us consider £24,000,000 of this amount as a standing charge for goods traffic. Let us suppose that the "maximum demand" is to be calculated for every firm paying the company £1,000 a year or more in carriage for goods traffic, and that it is to be expressed in units of 1,000 ton-miles. The annual loaded goods train mileage on the L.N.E.R. system is about 40,000,000. Presuming 300 tons per goods train, we find that approximately 12,000,000,000 goods-ton-miles are run in the year, so that the standing charge per goods-ton-mile may be calculated at £.002, or rather less than $\frac{1}{50}$ d., and the "maximum demand" charge will be at the rate of £2 per unit of 1,000 goods-ton-miles. Thus, for a firm whose maximum demand is 1,000,000 goods-ton-miles, the maximum demand charge will be £2,000. Beyond this, the firm will have to pay a flat rate per goods-ton-mile according to the classification of the goods carried. For instance, a Halifax firm sending coal twenty miles by rail now pays at a rate of approximately 3s. 2d. per ton. Coal would probably come under Class 2 of the new classification, and in all probability the rate would be 1 $\frac{1}{2}$ d. per goods-ton-mile for the first ten miles, 1d. for the next twenty miles, $\frac{1}{2}$ d. for the next twenty miles, and $\frac{1}{4}$ d. per mile afterwards up to two hundred miles, then $\frac{1}{8}$ d. for every succeeding mile. Besides this mileage rate, the standing charges would be paid for at a rate of $\frac{1}{2}$ d. per goods-ton-mile until the

maximum demand of the firm had been covered. The carriage of coal would thus be charged in accordance with the following table—

RATES PER TON							
Mileage	Standing Charge	Mileage Charges					Total
		@ 1½d.	@ 1d.	@ ½d.	@ ¼d.	@ ⅓d.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
20	10	1 3	10	—	—	—	2 11
40	1 8	1 3	1 8	5	—	—	5 —
60	2 6	1 3	1 8	10	2½	—	6 5½
100	4 2	1 3	1 8	10	1 0½	—	8 11½
250	10 5	1 3	1 8	10	3 1½	6½	17 9½

After the maximum demand of any firm had been covered the standing charge rate of ½d. a mile would not be charged on that firm's traffic for the rest of the year. There would, of course, be a minimum transport charge based on, say, a ten-miles' haul, so that terminal charges would be met.

Advantages of Maximum Demand System.

Other goods would be charged under the same conditions, save that the mileage charges would be affected by the classification of the goods carried. Under this system, if any firm's carriage charges were found to be too high, they could be adjusted by the simple process of altering the firm's maximum demand. The system would encourage firms to send all their goods by rail because once they had paid the maximum demand figure their goods would be carried at a very low rate, and it would not pay them to send any goods by road transport carriers.

It should further be remarked that the railway

companies would, as in the case of passenger traffic, co-ordinate road and rail services, and send goods by road wherever it proved more economical to do so, charging the same rates to their customers, by whatever means the goods were carried.

We have made provision, so far, only for firms paying at least £1,000 per year in goods charges. Smaller firms would deal with forwarding agencies, like Sutton or Patterson, who would be in the same position as the large firms with regard to the railway company.

The phrase "what the traffic will bear" is much maligned, but it is obviously impossible to make charges that the traffic will not bear. It is further evident that, whatever may be the basis of the system of charges, should the net revenue prove insufficient to remunerate capital either the railways will cease to function—clearly an improbable hypothesis—or they will have to be subsidized by the taxpayer. I contend that some system of charging similar to the one here suggested will be able to offer to the lowest classes of traffic a rate that they can bear, and to the highest classes a rate with which road transport cannot compete, except, perhaps, for short hauls of a few miles. Moreover, the operation of the maximum demand rate would guarantee such road transport traffic to the railway-owned road services. If the railway companies continue to base their goods charges on "what the traffic will bear," they will be obliged continually to extend their exceptional rates to keep pace with road transport competition. If, on the other hand, they adopt a bold policy on the lines I have indicated, the co-ordination of road and rail would inevitably follow, and would be established upon the soundest possible basis.

The system suggested above may contain flaws in its

present rough state, but in principle it is sound. I am convinced that it is along these lines that the eventual solution to the goods-charges problem will be found. The same principles underly the whole structure of the electric "grid" system. So far as the world market is concerned, this country is one firm, and any system which will reduce its costs and increase its competitive power must be brought into use at the earliest possible moment.

CHAPTER VIII

THE EFFECTS OF THE APPLICATION OF THE SUGGESTED SYSTEMS OF CHARGES FOR PASSENGER AND GOODS TRAFFIC

If the systems suggested in the preceding chapters were adopted for both passenger and goods traffic, the increased revenue brought in by the new system of passenger charges might be used in the reduction of charges for goods traffic, thus helping to compensate for the loss of revenue consequent upon the lowering of the number of classifications, and the rates of charge for goods traffic. Nobody grumbles to-day about the standard charge for a 2-oz. letter, even if one man has to pay 1½d. for a letter to go one mile, while another man's letter goes 300 miles for the same charge. In the same way we see no reason why there should not eventually be an absolutely flat rate per goods-ton-mile, which would still further lower operation costs. A system of this kind would be welcomed by all the large firms who use the railway, for their savings on clerical work would enable them to pay, if necessary, even a slightly higher rate than they pay at present. It is certain, however, that the rate would actually be less, and that there would be a large saving both for the big firms and for the railway companies. This would result in lower transport costs, increased net revenue for both railway companies and traders, and an improvement of the competitive power of the community.

New Scheme the Logical Sequel to the Railways Act, 1921.

A rate scheme of this kind is the logical outcome of

the Railways Act, 1921, and provides the only means of earning the standard revenue while allowing the Act to operate to the benefit of the community, as it was intended to do. If the four group companies cannot agree together to operate some such scheme they are unconsciously heading for nationalization. The benefits of nationalization without its disadvantages can only be secured for the community on condition that the railways co-operate for the purpose of collective action as a single public utility company.

Effect of the New Scheme on Shareholders.

The shareholder has been the chief sufferer from the economic effects of amalgamation and the Railways Act. He would again be victimized were the railways to be nationalized, nor will he escape if railway finance remains in its present deplorable condition. Under the new scheme the whole capital value of the railways would be increased, and railway stock would again be in a premier position. Nationalization would then be removed to the realms of remote possibility.

A Demand for Transport Created.

Transport is offered for sale, and if it is to be sold it must be offered in an attractive and businesslike way. It is possible to create a demand for transport and the new system would create this demand. Demand is not always flexible. The London Tubes, with their exceptionally high capitalization—£1,000,000 per mile—require, and in fact possess, a high load factor, and it is possible that demand for their services would expand very little under the influence of the lowering of rates. For the group railways, on the other hand, the load factor is very low, and demand is flexible and can be increased by a reduction in fares.

Effect Upon Railway Working.

Railway working to-day must be a nightmare to the officials in charge. They are faced with the problem of providing a service that will pay its way, and they are trying to solve that problem by economizing at every point. They are eliminating all staffing that can possibly be dispensed with, and trying to keep in use equipment that is due for replacement. They are attempting by a reduction in the number of trains to cut out those which do not pay. In fact they are really trying to earn more revenue from less traffic. But more, and not less, traffic is the first essential to the recovery of the railways, and I contend that by working on the new principles which inspire the system suggested above, they could secure a steadily increasing volume of traffic by the mere change-over to a sound system of rates of charge.

As a result of the application of the new system, the railway officials would be engaged once more on their real work—running the railways to the maximum capacity. Their pre-occupation would no longer be the cutting down of trains in order to save expense. They would be concerned with such questions as how to put on more trains, and run them more quickly; how to increase the capacity of the track; how to increase the efficiency of the main lines by taking short-distance traffic by road; and how best to use the money available for improvements. The change would undoubtedly have a deep effect upon the moral of the railway companies' employees. They would still be faced with the problem of securing an increasing revenue, but with a rising volume of traffic, secured by the efficient working of the proposed system, the solution would offer itself.

Economic Effect Upon the Country as a Whole.

Transport is a basic industry of basic industries, and it is absolutely necessary that its cost should be reduced to a minimum. The application of the new scheme would go far towards the realization of that ideal. Our cost of production would be considerably lowered; it is hardly necessary to stress the importance of this factor to an industrial nation largely dependent on export trade. If our transport system were co-ordinated and rationalized on these lines we should rapidly regain our industrial lead.

Nearly all the country's existing canal system is owned by the railway companies, and the capacity of the railways could be increased by the proper use of the canals for heavy traffic like coal and minerals. Again, where speed of transport is an important factor rail and air services might be co-ordinated with excellent result.

The speeding-up of the transport system would mean more rapid production of goods, and an increased velocity of currency circulation. This would strike a blow at unemployment by causing an increase in the volume of trade, without inflation of the currency. Moreover, the railway companies would be in a position to order new and improved railway stock, steel rails, improved goods wagons, etc., thereby providing still further employment. The financial position of the railways would become strong enough to warrant the grant of further capital borrowing powers to permit more improvements in railway working. A reasonable return would be guaranteed to the capital invested in the transport system, and shareholders would encourage the recovery of trade either by spending this interest, or by re-investing it in further productive enterprise.

When the lines are carrying so much traffic that increased capacity becomes desirable, the railway companies should introduce electrification. In the long run the railways will inevitably be electrified; in fact, they should form the basis of a National Grid Scheme of Electrification. I consider this matter so important that I shall devote the next chapter to the considerations of the subject.

CHAPTER IX

RAILWAY ELECTRIFICATION

THE electrical, gas, and coal industries all have economic reactions upon each other. They seem to be competitors, but they are all necessary to the community, and when they have found their proper spheres their relationship will be rather one of co-operation than competition.

Economic Field for Gas, Electricity, and Coal.

In recent years the coal industry has suffered a considerable decline traceable to a variety of causes. The fall in the gas industry's demand for coal resulting from improvements in the methods of production of gas from coal; the loss of export markets as a result of deliveries of "reparations coal"; the growth of the use of oil for shipping—all these factors have contributed to a general decrease in the demand for coal. At the same time the gas industry has suffered from the competition of electricity in the sphere of lighting, but it has simultaneously expanded the market for gas power used in cooking and heating. This last, indeed, is a realm where the gas industry seems to have permanent economic advantages; the ability to store gas gives it immediate superiority over the electrical industry for the supply of power for heating and cooking, a demand which falls on the peak load, though if power of this kind were required at another time, when the load was not full, it could be very cheaply supplied by the electrical industry. The by-products of the gas industry are necessary to industry, so that it would not, in any

case, be to the advantage of the community that gas should be entirely superseded by electricity. Both forms of energy have their advantages, and each should be used in its proper economic sphere. Gas, however, is not sufficiently pliable to merit serious consideration as the motive force for railway engines. More coal should be used by the gas industry, which should lay greater stress on the production of benzol, and other by-products, particularly smokeless fuel. There are opportunities in this direction which, if properly exploited, would more than compensate the coal industry for the fall in demand due to the electrification of the railways, and the introduction of economies in the industrial uses of coal. All the benzol and oil requirements of our petrol engines should be produced from coal. It is, in fact, along these lines that the coal industry must inevitably develop. The use of coal has been, and is at present still being, rationalized. Railway electrification, which is bound to come, will mean still further rationalization. At the same time as it brings down the cost of electricity, upon which so many industries depend, it will reduce the cost of transport, so that we may well be able to extend our coal markets, and finally increase our total sales of coal.

Increase of Carrying Capacity of Railways.

There is no doubt that electrification would considerably increase the carrying capacity of the British railways for both passengers and goods. The essential difference between steam and electricity, considered as motive powers for the hauling of trains, is that steam-power must be manufactured on the engine hauling the train, while electrical power can be manufactured, or generated, in an electricity works and transmitted to

the engine as required. This gives electricity a great advantage over steam. The horse-power of a steam engine is limited by the loading gauge of the railway, whereas the horse-power of an electrically-driven train has no such limitations. In the case of the steam engine, the weight of the train is limited by the power developed—by the tractive effort developed by the engine, and by the friction between the driving wheels and the rails. This imposes on the steam locomotive limitations that are not operative upon an electric drive, which is spread out all over the train. Thus, an electrically-driven train has much quicker starting and better acceleration because of its superior torque factor and tractive effort. The same advantages apply in respect to deceleration, the driving motors acting as brakes when the train is slowed down and supplementing the power of the air brakes.

Advantages of Electricity Over Steam.

The advantages of electricity over steam make it possible to run more trains over a given length of track in a given time. The capacity of the platform accommodation is also augmented by the increase in the speed with which trains move to and from the platforms. Whereas a steam engine takes two or three hours to "get steam up" an electrical drive does not require two minutes' attention. The amount of time spent in taking in supplies of water for the boiler, cleaning out fires, cooling off, drawing out the fire, and so forth, must represent 20 per cent of the total time of a steam locomotive. The electrical drive requires no loss of time in this way, and so is evidently better fitted for continuous work. Power cannot be as efficiently generated by a locomotive as in a modern electricity works. In respect

of long runs with severe gradients the superiority of the electrically-driven locomotive, backed by the power station, is at once apparent. The following case may serve as a further example of the superiority of the electric drive. Ten steam trains may each be hauled by an engine of 200 horse-power, although 50 horse-power would be sufficient were it not for one particular gradient on the line. These trains employ an aggregate engine power of 2,000 h.p., 75 per cent of which is only in use for perhaps 5 per cent of the time. In the case of an electric drive by reason of the diversity factor, 750 h.p. at the central station would be found ample to do the work, thus saving 1,250 h.p. in generating plant. The operation of a more efficient plant than is possible on a steam locomotive would also effect considerable saving in the generation of the power required.

Electricity is cleaner and healthier than steam. A great saving in the cost of painting trains and stations would be effected were the railways electrified. The danger of fire along the track in dry weather would be practically removed. The cost of turn-tables, and their upkeep would be done away with, for the electric train can run either way with equal efficiency. Moreover, electrification would obviate the necessity for the handling and haulage of coal for the steam engines, and the provision of storage accommodation, wagons, and other facilities now necessary. The savings on the electric lighting of trains would be enormous, as generators and accumulators on trains are a very costly item. Under electrification, cooking on the long-distance trains would be a very simple matter, whereas now it is difficult, expensive, and hopelessly inefficient. Finally, it has long been an acknowledged fact that the cost per effective unit of hauling power is certainly not

greater, and probably rather less for electricity than for steam.

Fundamental Error of the Electric Grid Scheme

This brings us to the consideration of our present electrical supply. The possibility of a large supply depends almost entirely on the size of the demand. At present co-ordination and rationalization are the order of the day in the British electrical industry. But a great mistake is being made in the application of rationalization. The railways are being left outside, whereas they should form the very basis of the country's electrification scheme.

Let us see what is the object of the vast electrification scheme which is now being put into operation. Up to the present time every large town—with few exceptions—has had its own generating plant. The towns have supplied electrical energy within a certain radius of the works. But large areas in between the towns have been left without any electrical supply. Moreover, each town requires sufficient reserve power to cover possible breakdown of its plant, and this reserve power has to be based upon the peak load. Provision of this kind adds considerably to the cost of generation of electricity. Thus, where the average load of an electricity works is 10,000 kw., and its maximum load 20,000 kw., 30,000 kw. of plant is installed. The night load—from 11 p.m. until 6 a.m.—is probably only 1,000 kw. It is clear that the linking up of all these various stations by means of cables called the “grid” would allow a great reduction in the amount of reserve plant required against possible breakdown. Where at present ten towns have aggregate spare plant of 100,000 kw., under the grid system a collective reserve provision of

20,000 kw. would suffice. Another great advantage is that during the night, when the load was very low, nine of the ten stations could close down, leaving the whole load to the remaining station, which would be able to work at maximum efficiency. Space does not permit the consideration of all the advantages of the grid system, but I think that those already cited will have shown that the bringing of electricity into more general use over the whole country will not be by any means the only benefit which the adoption of the scheme will confer upon the community.

Why Railways Should be Included.

We come now to the main object of this chapter: to point out the urgency of the inclusion of the railways in such a scheme. A glance at a map of the British railways will show at once that they can provide the ideal routes for the grid scheme. The railway runs through every town in the country where electricity is used, and has a coal-siding leading to most electricity works of appreciable size. It is hard to see why advantage has not been taken of these facilities. The only means of providing cheap electricity for the whole country is the establishment of universal connection by means of the grid, the efficient generation and distribution of power, the raising of the load factor to a maximum, and the standardization of electrical apparatus and the means of supply. It is obvious that the electrification of the railways by means of the grid would lower the cost of electricity for the whole country. The transport and electrical industries would benefit mutually from such co-operation. While the railways could provide an ideal night load for the grid system, it would be a great convenience to the railways themselves to be able to

run an express goods service by night at the very low power costs which could be charged to them. The railways would also form a good day load, because the diversity factor would be very high. The capacity of the railways would be greatly increased, and travel would be safer as well as quicker. Signalling, too, would be less costly and more efficient than it is now.

Provision for railway electrification should be made at once, while the grid scheme is in process of elaboration. The capital involved would be high, but still greater economies are at stake. The capital cost would soon be written down, and we as a nation should be endowed with cheap and efficient systems both for electricity and transport. The large firms served by the railway, but not in touch with any town, would be able to obtain power at a very low rate. This would considerably increase their competitive power by lowering their costs of production. Railway electrification would bring down the costs of production for the whole country, and, in conjunction with a new scheme of transport charges, would put us once more in the first place among industrial nations.

The amount of productive work which would be provided by railway electrification is another important point in its favour, particularly in the period of industrial depression through which we are now passing. Ninety-five per cent of the work of electrification could be carried out by British labour, and a large part of the cost would be balanced by the saving in unemployment payments. The necessary raw materials could be imported from our colonies, the textile trades and the other depressed industries would feel the stimulus of an increase in the amount of money spent by the working classes, for it is surprising how money circulates

all through industry once it is set in motion on a sound productive basis.

Our conclusion is that the question the community must try to answer is not "Should the railways be electrified?" but, rather, "Why has the electrification of the railways not been considered jointly with the national grid scheme for the country?"

CHAPTER X

RAILWAY MANAGEMENT

WITH energy, ability, and foresight, it should not be a very difficult task to turn the British railways into a thoroughly flourishing concern; without these qualities it would be impossible. Thorough efficiency must be made a condition of service if our railways are to be made to pay—it is essential in every grade from porter to director. The railway directorate should be composed of men who can combine with railway experience a sound knowledge of modern business methods, and the vision which will enable them to revolutionize the running of the transport industry. They should be prepared to devote their whole time to the improvement of the service under their control, and they should be ever watchful to detect and make use of outstanding ability in the younger employees of the railways. Any business concern can be judged by the men at its head. It is idle to expect subordinates to show the keenness and vitality essential to the subsistence of a business under modern competitive conditions, if these qualities are lacking in their superiors. The railway service of this country, in view of its basic importance to the rest of the country, should employ the best brains that can be found. Particularly is this necessary when, as at the present time, a process of rationalization is taking place in industry throughout the world. Economic development is moving at high speed, and the peoples that do not advance with the times will be rapidly out-distanced and left to the fate of all decaying powers. Bigger developments are taking place in finance and

transport during this second quarter of the twentieth century than took place in the corresponding period of the nineteenth century, and we may confidently look forward to a further period of intense industrial development during the next thirty years. Moreover, I am convinced that this development will dwarf everything that has preceded it, and will realize the true meaning of the text of this book—

Money is not wealth under our modern system of finance. It is merely the means of exchanging goods and services for other goods and services, and this exchange is greatly accelerated by transport development.

Up to the present time, neither money nor transport has been used so as to give the maximum benefit to the community. Let me submit an example to illustrate this point. We have to-day large numbers of unemployed who are able and willing to work if work is provided for them. But whether they work or not, they must have food to live on. Unless they can produce that food themselves, the community must provide them either with work or with the money to buy food. Under our present economic organization they are provided with money, in the form of unemployment pay, which is a tax on the rest of the community, and which just enables them to buy the elementary necessities of existence. It is my contention that work can be found for the unemployed by a proper business organization of the assets, income, and productive machinery controlled by this country, and the scientific use of money on the principle laid down in the text of this book.

If a quarryman, a mason, a bricklayer, a carpenter, a plasterer, a plumber, an electrician, and a labourer are all out of work in a community that needs new houses,

the very fact that these men are given unemployment pay instead of work proves that money is not used in the way in which it should be used in a modern civilized community. If, instead of buying food, which they merely consume, the unemployed could buy raw material upon which they could expend their skill so as to enhance its value, and then exchange it for other produce similarly worked up from raw material—that is to say, if they were given work, instead of maintenance—the monetary system would be fulfilling its proper purpose: the acceleration of the exchange of goods and services, for goods and services.

The country's transport system is the machine which is called upon to render the most important services in connection with this process of the efficient production and exchange of goods. It is, therefore, no exaggeration to state that the economic development of a country is in direct proportion to the efficiency of its transport system.

The True Value of British Railway System.

In conclusion, may I express the hope that my readers have been helped to realize the value of the transport organization owned and worked by the British railway companies, its importance under modern economic conditions, and the urgent necessity that it should be run with the utmost efficiency. Not less important is its financial prosperity, which is indispensable if fresh capital is to be attracted to the industry, so as to allow for future developments, and still further to increase the value of its services to the community.

With the railways at its foundation, the transport system of this country is on the threshold of a new era of prosperity. Railway shares are worth more in terms

of money to-day than ever before in their history. Any one who sells at the present price makes confession of his failure to understand the true economic position. Economically, the railways are so securely placed that they are bound to come into their own again. Sound economic conditions will inevitably reassert themselves after a period of artificial restriction.

I have tried to give some idea of the prospects of future development which lie before our transport system. In making a survey of the economic position of British railways, I have put forward a few suggestions for the improvement of our transport system. I am confident that the adoption of these suggestions would result in the provision of a better service for the community, improved working conditions for railway employees, and an increased return for the long-suffering railway shareholders. No branch of economic science is so dynamic as that of transport economics.

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